

1 ABSTRACT
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3 A method for environmental monitoring and bioprospecting includes the steps
4 of: (a) utilizing a testing device having: (i) a container having a fluid inlet and outlet,
5 (ii) a plurality of capillary microcosms situated within the container, each of these
6 capillaries having an inlet and outlet that are configured so as to allow for fluid flow
7 through the capillaries, each of these capillaries further having a means for covering
8 its inlet and outlet so as to prevent flow through the capillary, (iii) a pump connected
9 to the container outlet, the pump being configured so as to draw fluid from the
10 surrounding environment into the container's inlet and through the capillaries, (iv)
11 connected to the outlet of the container, a means for collecting the flow through the
12 container, and (v) a check valve connected downstream of the container to prevent the
13 backflow of fluid into the container, (b) adding specified test substances to the
14 device's capillaries, wherein these substances are to be analyzed for their ability to
15 accelerate a specified biotransformation process in the subject environment, (c)
16 locating this device in this environment and opening the capillary covering means so
17 as to allow fluid from the surrounding environment to flow though the container and
18 capillaries, (d) leaving the device in situ for a temporal duration sufficient to incubate
19 phenomena occurring within the capillary microcosms, (e) retrieving the testing
20 device, and (f) analyzing phenomena occurring with the capillary microcosms using
21 automated analysis schemes and commercially available robotics.

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